

20050909 01300

SEQUENCE LISTING

<110> Cahoon, Edgar B.
Kinney, Anthony
Klein, Thodore
Lee, Jian Ming
Pearlstein, Richard
Rafalski, J. Antoni
Shen, Jennie
Thorpe, Cathy
Tingey, Scott
Weng, Zude

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<150> 60/119,597
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 Arg Val Thr Asn Ile Gly Gly Lys Lys Ile Lys Gly Thr Val Val Leu
 35 40 45
 Met Arg Ser Asn Val Leu Asp Phe Thr Glu Phe His Ser Ser Leu Leu
 50 55 60

Asp Gly Val Thr Glu Leu Leu Gly Gly Gly Ile Ser Leu Gln Leu Ile
 65 70 75 80
 Ser Ala Thr His Ala Ser Asn Asp Ser Arg Gly Lys Val Gly Lys Gly
 85 90 95
 Ala Phe Leu Glu Arg Trp Leu Thr Ser Val Pro Pro Leu Phe Ala Gly
 100 105 110
 Glu Ser Val Phe Gln Val Asn Phe Leu Gly Arg Glu Leu Trp Asp Phe
 115 120 125
 Gln Gly Ala Phe Phe Ile Lys Asn Gly His Thr Ser Glu Phe Phe Leu
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 Cys Asn Ser Xaa Val Xaa Pro Ser Arg Arg
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 agaggagatg aatatgggtgc catatgcaaa gtctacaccc cggtcaaca tgggtgtagaa 240
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 Thr Tyr Ala Ser Arg Thr Leu Leu Ile Leu Arg Lys Asp Gly Thr Leu
 35 40 45
 Met Pro Leu Ala Ile Glu Leu Ser Leu Pro Asn Pro Arg Gly Asp Glu
 50 55 60
 Tyr Gly Ala Ile Cys Lys Val Tyr Thr Pro Ala Gln His Gly Val Glu
 65 70 75 80
 Ala Ser Leu Trp Gln Leu Ala Xaa Ala Tyr Val Val Val Asn Asp Ser
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 Cys Ile His Glu Ser Val
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 ggngacggcg tcggnggagg cgtcgccggc catcgggcag atgtacttcc agcgcgccgt 180
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 cgacgcaaag tcgggcgtgg agaaaacgcg ggtgacggcg tacgcgcaca agacgctgcg 300
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 gctggtggag aacgagcacc acaaggaggt cttcatcaag gagatcaagc tcgtcaccgg 420
 cggcgacagc agcaccgccg tcaccttcga ctgcaactcc tgggtgcact ccaagttcga 480
 caaccggag aagcgcatct tcttcaccct caagtcatac ctgccgtccg acacgcccaa 540
 ggggctggag gacctgagga agaaagacct gcaggcgctg cgcggcgacg ggcacggcga 600
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 His Tyr Glu Ala Glu Phe Lys Val Pro Ala Ser Phe Gly Pro Val Gly
 35 40 45
 Ala Val Leu Val Glu Asn Glu His His Lys Glu Val Phe Ile Lys Glu
 50 55 60
 Ile Lys Leu Val Thr Gly Gly Asp Ser Ser Thr Ala Val Thr Phe Asp
 65 70 75 80
 Cys Asn Ser Trp Val His Ser Lys Phe Asp Asn Pro Glu Lys Arg Ile
 85 90 95
 Phe Phe Thr Leu Lys Ser Tyr Leu Pro Ser Asp Thr Pro Lys Gly Leu
 100 105 110
 Glu Asp Leu Arg Lys Lys Asp Leu Gln Ala Leu Arg Gly Asp Gly His
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 Gly Glu Arg Lys Val Phe Glu Arg Val Tyr Asp Tyr Asp Val Tyr Asn
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 Glu Leu Gly
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 20 25 30
 Cys Leu Ala Ser Leu Ile Ala Gly Thr Ser His Arg Gln Ala Arg Asp
 35 40 45
 Gly Ala Ser Arg Glu Ala His Pro Pro Ala Ser His Arg Val Pro Glu
 50 55 60
 Lys Arg Arg Ala Arg Lys Gly Glu Xaa Ala Xaa Met Phe Trp His Gly
 65 70 75 80
 Val Ala Asp Arg Leu Thr Gly Lys Asn Lys Glu Ala Trp Ser Glu Gly
 85 90 95
 Lys Ile Arg Gly Thr Val Arg Leu Val Lys Lys Glu Val Leu Asp Val
 100 105 110

Gly	Asp	Phe	Asn	Ala	Ser	Leu	Leu	Asp	Gly	Val	His	Arg	Ile	Leu	Gly
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Trp	Asp	Asp	Gly	Val	Ala	Phe	Ser	Ser	Ser	Ala	Pro	Pro	Arg	Ala	Thr
	130					135					140				
Pro	Ala	Thr	Gly	Ala	Val	Ala	Arg	Trp	Gly	Arg	Arg	Arg	Thr	Trp	Arg
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20 25 30

His Leu Lys Gly Asn Val Val Leu Val Arg Lys Thr Val Leu Gly Leu
35 40 45

Asp Val Thr Ser Ile Ala Gly Ser Leu Leu Asp Gly Val Gly Glu Phe
50 55 60

Leu Gly Arg Gly Val Thr Cys Gln Leu Ile Ser Ser Thr Val Val Asp
65 70 75 80

Pro Asn Asn Gly Asn Arg Gly Lys Leu Gly Ala Glu Ala Ser Leu Glu
85 90 95

Gln Trp Leu Leu Asn Pro Pro Pro Leu Leu Ser Ser Glu Asn Gln Phe
100 105 110

Arg Val Thr Phe Asp Trp Glu Val Glu Lys Gln Gly Ile Pro Gly Ala
115 120 125

Ile Ile Val Lys Asn Asn His Ala Xaa Glu Xaa Phe Leu Lys Thr Ile
130 135 140

Thr Leu Asn Asp Val Pro Gly Thr Gly Pro Ser Ser Ser Ser Pro Thr
145 150 155 160

His Gly Ser Thr Arg Ser Pro Ser Thr Ala Thr Thr Ala Ser Ser Ser
165 170 175

Pro Thr Thr Arg Thr Phe Pro Ser Gln Met Pro Ala Ala Leu Lys Pro
180 185 190

Thr Xaa Thr Thr Ala Ser Gly Thr Xaa Thr Ile Val Phe Val Ala Asn
195 200 205

Ser Trp Ile Tyr Pro Gln Ser Lys Tyr Arg Tyr Asn Arg Val Phe Phe
210 215 220

Ser Asn Asp Thr Tyr Leu Pro Lys Pro Asp Ala Gly Gly Ala Glu Ala
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 Arg Val Thr Asn Ile Gly Gly Lys Lys Ile Lys Gly Thr Val Val Leu
 35 40 45

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Asp	Gly	Val	Thr	Glu	Leu	Leu	Gly	Gly	Gly	Ile	Ser	Leu	Gln	Leu	Ile
65					70					75					80
Ser	Ala	Thr	His	Ala	Ser	Asn	Asp	Ser	Arg	Gly	Lys	Val	Gly	Lys	Gly
				85					90					95	
Ala	Phe	Leu	Glu	Arg	Trp	Leu	Thr	Ser	Val	Pro	Pro	Leu	Phe	Ala	Gly
			100					105					110		
Glu	Ser	Val	Phe	Gln	Val	Asn	Phe	Asp	Trp	Glu	Glu	Asn	Phe	Gly	Phe
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Lys	Ser	Val	Thr	Leu	Glu	Asp	Val	Pro	Gly	Phe	Gly	Arg	Val	His	Phe
145				150						155					160
Asp	Cys	Asn	Ser	Trp	Val	Tyr	Pro	Ser	Arg	Arg	Tyr	Lys	Lys	Asp	Arg
				165					170					175	
Ile	Phe	Phe	Ala	Asn	His	Thr	Cys	Leu	Pro	Ile	Asp	Thr	Pro	Asp	Ser
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Thr	Gly	Glu	Arg	Lys	Glu	Trp	Asp	Arg	Ile	Tyr	Asp	Tyr	Asp	Val	Tyr
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Asn	Asp	Leu	Cys	Asp	Pro	Asn	Gly	Gly	Pro	Asn	Leu	Val	Arg	Pro	Ile
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Arg	Pro	Pro	Ala	Arg	Lys	Asp	His	Lys	Tyr	Glu	Ser	Arg	Leu	Ser	Asp
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Phe	Asp	Lys	Phe	Lys	Glu	Val	Asp	Asp	Leu	Phe	Glu	Arg	Gly	Phe	Pro
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Pro	Gln	Gly	Asp	Glu	His	Gly	Ala	Ile	Ser	Lys	Leu	Tyr	Phe	Pro	Ala	
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Leu	Tyr	Tyr	Lys	Asp	Asp	Asp	Ala	Ile	Arg	Asn	Asp	Val	Glu	Leu	Gln	
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Ser Trp Trp Lys Glu Leu Arg Glu Lys Gly His Thr Asp Lys Lys Asp
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Glu Pro Trp Trp Pro Lys Met Gln Thr Phe Ser Glu Leu Ile Glu Ser
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Cys Thr Ile Ile Ile Trp Ile Ser Ser Ala Leu His Ala Ala Val Asn
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Ser Arg Arg Phe Met Pro Glu Val Gly Thr Ala Glu Tyr Lys Glu Val
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Glu Ser Asn Pro Glu Lys Ala Phe Leu Arg Thr Ile Ser Ser Gln Ile
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Val Ala Leu Leu Gly Leu Ser Ile Ile Glu Ile Leu Ser Lys His Ala
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Ser Asp Glu Val Tyr Leu Gly Gln Arg Ala Ser Ile Glu Trp Thr Ser
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Asp Lys Ser Ala Ile Glu Ala Phe Glu Lys Phe Gly Lys Glu Leu Phe
820 825 830

Glu Val Glu Asp Arg Ile Met Arg Arg Asn Gln Asp Val Asn Leu Lys
835 840 845

Asn Arg Ala Gly Pro Val Asn Met Pro Tyr Thr Leu Leu Val Pro Ser
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Ser Thr Glu Gly Leu Thr Gly Arg Gly Ile Pro Asn Ser Ile Ser Ile
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<212> DNA
<213> Impatiens balsamia

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Thr Lys Thr Tyr Ala Ser Arg Thr Leu Leu Ile Leu Arg Lys Asp Gly
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Thr Leu Met Pro Leu Ala Ile Glu Leu Ser Leu Pro Asn Pro Arg Gly
      50              55              60

Asp Glu Tyr Gly Ala Ile Cys Lys Val Tyr Thr Pro Ala Gln His Gly
      65              70              75              80

Val Glu Ala Ser Leu Trp Gln Leu Ala Lys Ala Tyr Val Val Val Asn
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Asp Ser Gly Ile His Glu Leu Val Ser His Trp Leu Asn Thr His Ala
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Val Ile Glu Pro Phe Val Ile Ala Thr Asn Arg Gln Leu Ser Val Leu
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His Pro Ile Gln Lys Leu Leu His Pro His Phe Arg Asp Thr Met Asn
      130             135             140

Ile Asn Ala Ile Ala Arg Asn Val Leu Ile Asn Ala Gly Gly Val Ile
      145             150             155             160

Glu Asn Thr Phe Phe Thr Ser Lys Tyr Ser Met Glu Met Ser Ser Ala
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Ile Tyr Lys Asn Trp Ile Phe Thr Asp Gln Ser Leu Pro Val Asp Leu
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Ile Lys Arg Gly Ile Ala Val Lys Asp Asp Lys Glu Lys Arg Gly Leu
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Arg Leu Leu Ile Glu Asp Tyr Pro Tyr Ala Val Asp Gly Leu Glu Ile
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Trp Phe Ala Ile Lys Thr Trp Val Glu Asp Tyr Cys Asp Phe Tyr Tyr
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Lys Glu Leu Lys Glu Val Gly His Gly Asp Lys Arg Asn Glu Pro Trp
260 265 270

Trp Pro Lys Met Glu Thr Arg Lys Asp Leu Leu Glu Thr Cys Thr Ile
275 280 285

Ile Ile Trp Val Ala Ser Ala Leu His Ala Ala Leu Asn Phe Gly Gln
290 295 300

Tyr Pro Tyr Gly Gly Tyr His Pro Asn Arg Pro Thr Asn Ser Arg Arg
305 310 315 320

Leu Met Pro Glu Val Gly Ser Pro Glu Phe Glu Glu Leu Lys Thr Asn
325 330 335

Pro Asp Gln Ile Leu Leu Lys Thr Leu Ser Ser Lys Ala Gln Thr Leu
340 345 350

Leu Glu Val Ala Ile Ile Glu Ile Leu Ser Arg His Thr Ser Asp Glu
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Val Tyr Leu Gly Gln Arg Asp Thr Pro Glu Trp Thr Lys Asp Glu Glu
370 375 380

Pro Leu Lys Ala Phe Asp Lys Phe Gly Lys Lys Leu Ala Glu Ile Glu
385 390 395 400

Val Arg Ile Ile Glu Met Asn Asn Asp Glu Ser Leu Lys Asn Arg Asn
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<212> DNA
<213> Zea mays

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 35 40 45
 His Arg Ile Leu Gly Trp Asp Asp Gly Val Ala Phe Gln Leu Val Ser
 50 55 60
 Ala Thr Ala Ala Asp Pro Ser Asn Gly Gly Arg Gly Lys Val Gly Lys
 65 70 75 80

206270-60655007

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Pro	Arg	Met	Asp	Thr	Val	Gln	Gln	Leu	Ala	Arg	Ala	Cys	Thr	Thr	Ile		
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Ile Trp Val Ala Ser Ala Leu His Ala Ala Val Asn Phe Gly Gln Tyr
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Pro Tyr Ala Gly Tyr Leu Pro Asn Arg Pro Thr Ala Ser Arg Arg Pro
740 745 750

Met Pro Glu Pro Gly Ser His Asp Tyr Lys Lys Leu Gly Ala Gly Gln
755 760 765

Lys Glu Ala Asp Met Val Phe Ile Arg Thr Ile Thr Ser Gln Phe Gln
770 775 780

Thr Ile Leu Gly Ile Ser Leu Ile Glu Ile Leu Ser Lys His Ser Ser
785 790 795 800

Asp Glu Val Tyr Leu Gly Gln Arg Asp Glu Pro Asp Arg Trp Thr Ser
805 810 815

Asp Ala Lys Ala Leu Asp Ala Phe Lys Arg Phe Gly Ser Arg Leu Val
820 825 830

Gln Ile Glu Asn Arg Ile Lys Thr Met Asn Asp Ser Pro Asp Leu Lys
835 840 845

Asn Arg Lys Gly Pro Val Glu Met Pro Tyr Met Leu Leu Tyr Pro Asn
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Thr Ser Asp Val Thr Gly Glu Lys Ala Glu Gly Leu Thr Ala Met Gly
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Ile Pro Asn Ser Ile Ser Ile
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Gln	Met	Tyr	Phe	Gln	Arg	Ala	Val	Asp	Asp	Ile	Gly	Asp	Leu	Leu	Gly
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Lys	Thr	Leu	Leu	Leu	Glu	Leu	Val	Ser	Ser	Glu	Leu	Asp	Ala	Lys	Ser
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Glu	Gly	His	Tyr	Glu	Ala	Glu	Phe	Lys	Val	Pro	Ala	Ser	Phe	Gly	Pro
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Val	Gly	Ala	Val	Leu	Val	Glu	Asn	Glu	His	His	Lys	Glu	Val	Phe	Ile
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Lys	Glu	Ile	Lys	Leu	Val	Thr	Gly	Gly	Asp	Ser	Ser	Thr	Ala	Val	Thr
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Phe	Asp	Cys	Asn	Ser	Trp	Val	His	Ser	Lys	Phe	Asp	Asn	Pro	Glu	Lys
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Gly	Leu	Glu	Asp	Leu	Arg	Lys	Lys	Asp	Leu	Gln	Ala	Leu	Arg	Gly	Asp
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Gly	His	Gly	Glu	Arg	Lys	Val	Phe	Glu	Arg	Val	Tyr	Asp	Tyr	Asp	Val
			180					185					190		
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Gly	Arg	Pro	Arg	Thr	Lys	Lys	Asp	Pro	Glu	Thr	Glu	Met	Arg	Glu	Gly
225					230					235					240
His	Asn	Tyr	Val	Pro	Arg	Asp	Glu	Gln	Phe	Ser	Glu	Val	Lys	Gln	Leu
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Thr Phe Gly Ala Thr Thr Leu Arg Ser Gly Leu His Ala Leu Leu Pro
260 265 270

Ala Leu Arg Pro Leu Leu Ile Asn Lys Lys Asp Leu Arg Phe Pro His
275 280 285

Phe Pro Ala Ile Asp Asp Leu Phe Ser Asp Gly Ile Pro Leu Pro Ala
290 295 300

Gln Thr Gly Phe Asp Ala Phe Arg Thr Val Val Pro Arg Met Val Lys
305 310 315 320

Leu Val Glu Asp Thr Thr Asp His Val Leu Arg Phe Glu Val Pro Glu
325 330 335

Met Ile Glu Arg Asp Arg Phe Ser Trp Phe Lys Asp Glu Glu Phe Ala
340 345 350

Arg Gln Thr Ile Ala Gly Leu Asn Pro Leu Cys Ile Gln Leu Leu Thr
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Glu Phe Pro Ile Lys Ser Lys Leu Asp Pro Glu Val Tyr Gly Pro Ala
370 375 380

Glu Ser Ala Ile Thr Lys Glu Ile Leu Glu Lys Gln Met Asn Gly Ala
385 390 395 400

Leu Thr Val Glu Gln Ala Leu Ala Ala Lys Arg Leu Phe Ile Leu Asp
405 410 415

Tyr His Asp Val Phe Leu Pro Tyr Val His Lys Val Arg Glu Leu Gln
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 Ile Asn
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Tyr Pro Tyr Xaa Gly Xaa Xaa Xaa Asn Arg Pro Xaa Xaa Ser Arg Arg
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